

Docket No. 220199US2S

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Tatsuya OHGURO

SERIAL NO: NEW APPLICATION

GAU:

FILED: Herewith

EXAMINER:

FOR: SEMICONDUCTOR DEVICE APPLIED TO A VARIABLE CAPACITANCE CAPACITOR AND AMPLIFIER

#2/5902  
jc997 U.S. PTO  
10/084148  
02/28/02

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D.C. 20231

SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

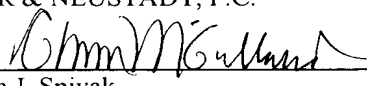
- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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**STATEMENT OF RELEVANCY**

**Reference AO (11-233799) on Form PTO-1449:**

This patent is regarding variable capacitance due to MOS capacitor. The variable range is large by this structure. But it is known that controlling of capacitor value is difficult in this structure. In our patent, variable capacitor structure is not MOS but  $P^+/N$  or  $N^+/P$  Junction.

**Reference AP (2-184081) on Form PTO-1449:**

This patent is regarding variable capacitor due to  $N^+/P$  Junction P type impurity concentration is not constant along lateral direction. The variable range is larger by this structure. However,  $Q$  value is not improved. In our patent,  $Q$  value increases though the range does not improve.

**Reference AQ (3-147375) on Form PTO-1449:**

The shape of  $P^+/N$  Junction is triangle in this patent. The break down voltage increases and variable range is longer by this structure. In our patent, the shape is not triangle. Our Patent focuses N type impurity profile and position in  $P^+/N$  Junction.